Date _____ **Class** _____

Teacher Materials:

Student Materials:

Grade 8 Science Objectives
Archdiocese of Cincinnati

Matter and change

1. Identify **chemical reactions** in terms of reactants and products
2. List factors affecting the **rate of reactions**
3. Measure the **volume** of various objects
4. Compare **densities** of various substances
5. Relate **mass, volume, and density**
6. Explain effects of height, depth on **pressure**

Atomic Structure

7. structure of the **atom**, ions, and isotopes
8. Understand chemical **bonding**
9. Distinguish among **atoms, elements, molecules, and compounds**
10. Know **chemical symbol** represent element
11. Recognize **elements** by symbol
12. Understand the **Periodic Table**
13. Differentiates between **acids and bases**
14. Know how to safely handle acids, bases
15. **Activity:** test for **acidity**/pH
16. Identify household liquids acidic, basic
17. Understand **neutralization** of acids and bases

Force, Motion and Work

18. Know the causes of **friction**
19. Activity: Demonstrate ways to increase or decrease **frictional forces**
20. Demonstrate **Newton's Three Laws of Motion**
21. Differentiate between **gravity, weight and mass**
22. Predict effects of varying forces
23. define **work** and how to measure it
24. Give an example of each type (six)of **simple machines**
25. **Activity:** construct a simple machine
26. Give examples of **compound machine**
27. Predict the amount of work (in general terms) needed to move various objects

Energy: Thermal (Heat) Energy

28. Energy can be transmitted by waves
29. Identify sources of heat energy
30. Identify **conductors** and **insulators**
31. Describe the processes of **heat transfer** (conduction, convection, and radiation)

Magnetism and Electricity

32. Identify units of electrical **measure**
33. Describe the main parts of a **capacitor**
34. Identify how electricity is produced by generators and motors
35. Give ex. of **A.C. and D.C. currents**
36. Describe **Ohm's Law and its application**

Wave Energy :Light and Color

37. Know that an object is visible because of the **light** reflected from it
38. Identify the properties of light
39. Understand light travels in waves
40. Identify components of the **electromagnetic spectrum**
41. Identifies objects as **transparent, translucent, and opaque**
42. Explain **refraction** and **absorption**
43. know how **colors** are produced
44. Identify types of images formed by convex and concave mirrors/lenses

Sound

45. Know how **sound waves** work
46. Know what effects **speed of sound**
47. **Activity:** demonstrate materials which **reflect and/or absorb sound**
48. Explain how **frequency, wavelength, and amplitude** connect
49. Differentiate **ultrasonic, subsonic**
50. Describe how **radar** and **sonar** work

Nuclear Energy

51. Distinguish between **nuclear fission** and **nuclear fusion**
52. Understand **radioactivity**
53. Know the effects of **radiation**
54. Describe **nuclear reactor**
55. Identify societal issues related to the
56. Understand the **need for conserving** non-renewable sources of energy
57. Suggest **ways to conserve** energy
58. Explore ways to utilize **solar energy**
59. Describe ways in which energy is **converted** to other forms (**Law of Conservation of Energy)**
60. Examine and evaluates **societal decisions** regarding environmental issues

Society and Technology

61. Discuss how various influence the use of technology
62. Read, construct, and interpret data in various forms
63. Know the difference between description and explanation
64. Understand how sample size and control affect scientific investigations
65. Is familiar with risk-benefit analysis

Instructional Objectives:

Procedure:

Announcements:

Homework:

Evaluation: